

ABSTRACT OF THE INVENTION

A metal alloy capping layer containing a group VIII metal and silicon, carbon, or nitrogen may be used to protect copper interconnects of integrated circuits from oxidation and to prevent the electromigration of copper interconnects while at the same time not effecting the performance of integrated circuit. Methods of incorporating the silicon, carbon, or nitrogen into the group VIII metal to form the metal alloy capping layer are also presented along with methods of electrolessly forming the cap on a metal interconnect line.